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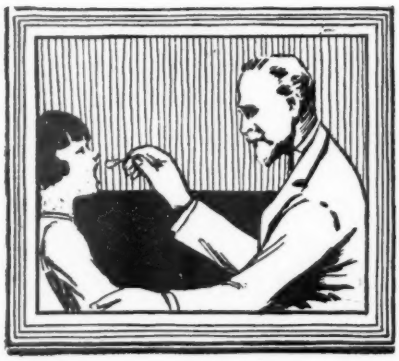

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Address.

ANNUAL MEETING OF THE MASSACHUSETTS TUBERCULOSIS LEAGUE, APRIL 23, 1919. INTRODUCTORY REMARKS BY THE PRESIDENT.

BY VINCENT Y. BOWDITCH, M.D., BOSTON.

AT this, our fifth annual meeting, we have to record some radical changes in the plans of our League in consequence of appropriations which have come through the National Tuberculosis Association to our Treasury which will enable us, we hope, to broaden greatly the scope of our work during the coming year.

During the year 1918, owing to the absence of our secretary, Mr. Seymour H. Stone, who was called to an important position created by the war and for which we felt we should grant him indefinite leave of absence, our work was necessarily hampered, although the League was busily employed in helping so far as possible matters incident to war conditions. The lectures given under the auspices of the League by renowned tuberculosis specialists to the military medical officers at Camp Devens during the winter of 1918 have already been mentioned in our last report. Efforts have been made to keep in touch with the various associations throughout the state. In regard to this latter function I regret to say that we have not been repaid by a knowledge that all the associations were keeping up to the standard of work that we hoped for. We believe, however, that this was largely due to war conditions and that in the future, especially with increased facilities for intercourse between the outlying districts and the central office, we can all work together much more effectively. By means of the appropriation from the National Association, we have succeeded, during Mr. Stone's absence, in obtaining the services of our new executive secretary, Mr. Robert V. Spencer, who will devote his time solely to the work of the League in our new offices in the Little Building on Boylston street.

Among the plans for the future we shall develop the so-called "consultation service" already adopted by the Framingham Community Health Association, by which an expert in tuberculosis, working with local physicians, holds clinics in which doubtful cases are examined, and if found to have evidences of the disease are advised accordingly. Already plans are formulated to spread this method throughout the State, and before the end of the present year we hope to have similar clinics established in other parts of Massachusetts under the auspices of the League and with the aid of the Health Department.

It is hardly necessary to state the importance of keeping track of such cases which otherwise might easily become a source of trouble in whatever community they may happen to be.

The League now pays for the admirable services of Mrs. Staebler in the "Health in Industry" Department, an office established by the Boston Anti-Tuberculosis Association, but which extends now throughout the State. This department is accomplishing excellent results in persuading mill and factory owners to keep supervision over the health of their operatives by visits from trained nurses at regular intervals. This work redounds not only to the economic advantage of the employers themselves but to the welfare of the whole community. Of the progress in this department we shall hear today from Mrs. Staebler.

The work of Miss Hyams of the Boston Association in the so-called "Malnutrition Clinic" is now also aided by the League. By means of this excellent organization, weak children are taken in charge at hospital clinics, kept under observation by a physician, properly fed, and trained in the care of their health until brought to normal standards. We believe that this object lesson in preventive measures will be followed by similar organizations throughout our State and elsewhere in the country.

The question of the returned discharged soldiers and sailors suffering with tuberculosis is an important one before us and will doubtless in the coming months present itself more vividly as a matter that will need the attention of our League. In spite of the fact that possible exaggerated statements may have been made in the past as to the prevalence of active tuberculosis among the returning soldiers and sailors, nevertheless, many cases will be discovered which will need care. It should be distinctly understood in this connection that the government will, as far as possible, keep all active cases under its own jurisdiction. Inevitably many will demand discharge and become more or less dependent upon public support. In our position as an association of private individuals independent of state or municipal official workers and with the necessary funds at hand it seems wise at this time to formulate plans for employing some one who shall assist in making investigations in selected places in the State as to the number and condition not only of tuberculous soldiers and sailors, but also of men previously rejected from service and civilians, who may be living without proper precautions and care in their communities. Plans are already being made by the Executive Committee and Executive Secretary to assist in this work of the State Health Department which, by means of "field nurses," has already begun investigations in various parts of the State.

Another feature of aid for the tuberculous soldiers and sailors has recently been under my observation, and although not coming strictly under the functions of the League, I feel impelled on this occasion to speak of it. I refer to work as a therapeutic aid in the treatment not only of thoroughly arrested cases but of those on the high road to recovery who are able to exercise for a limited time each day when under the care of a competent physician or nurse who has had experience in such matters. Most of you, I think, have heard of the Workshop and Agricultural Colony founded by the Private Sanatorium Association at Rutland, Massachusetts, a few years ago, and to which I made allusion at the last annual meeting. In my occasional visits there I have been much impressed not only by the quality of work produced by amateurs in pottery, basket making, weaving, and even carpentry, and farm work, but by the markedly beneficial effect, both mental and physical, noticed upon the cases especially selected for the purposes mentioned. Not only does the work have a therapeutic value, but economically it is successful from the fact that the articles made are a source of income to those who need the money, thus serving a double purpose, as an abstraction from the monotony of life under the usual conditions and as a means of at least partial support, which relieves the patient from the mental worry attendant upon limited means. At my latest visit quite recently I was more than ever impressed and I have had the additional satisfaction of conversations with several discharged soldiers and sailors who are now in private establishment, at Rutland and who, although not entirely arrested cases, are in excellent condition and who are able to avail themselves of this Workshop and Agricultural Colony. What is of still greater importance to my mind, however, is this fact, that in the work of rehabilitation of our soldiers and sailors we can, with confidence, urge upon the na-

tional associations devoted to the welfare of our military and naval men invalided for a time, the wisdom of not only supplying *avocational* work but many modified forms of instruction in *vocational* work to those who are in sufficiently good condition to undertake something in their own special line with infinite benefit to them in more ways than one.

I have had the privilege during the past few months of serving on a joint committee of the National Tuberculosis Association and the Federal Board of Vocational Education in Washington with special reference to discharged soldiers and sailors. The Vocational Board has promised substantial aid to the support of schemes which offer work for cases of arrested tuberculosis. After conversation with these invalided men and with Dr. B. T. Crane of Rutland, who has had them under his supervision, I would certainly advocate an extension of the Vocational Board's limitations and urge them to offer help also to such cases as are deemed capable of work during their treatment, even before perfect arrest of disease is attained,—proper supervision, of course, being a *sine qua non* of such proceedings. To give a concrete instance, to make my meaning more clear,—my conversations with several intelligent men, discharged tuberculous sailors, one a plumber, another an electrician, and others of similar occupations, convinced me that if teachers in these various departments could be supplied, it would be a distinct advance not only in making the men feel they were working for their future development in their own special branches, thus giving them the mental stimulus so important for their well being, but, economically speaking, a better class of workmen would be evolved. By what I have said I should not wish to be understood as relaxing in my belief that all such measures must be undertaken with the utmost caution in every case. But, given the proper institution, and given the proper men to control it, I believe that much more, infinitely more, can be done for the welfare of our patients, both civilian and military, if these facts are known and acted upon. I will not ask your pardon for emphasizing these matters which, perhaps, are not strictly under the direct jurisdiction of our League, but partake more of the medical aspect of the question. It involves so much that is really of public interest that I am desirous of bringing my own opinion before you who are all interested in anti-tuberculosis work in all its phases. Fortunately we shall hear this afternoon from Dr. Crane, who will give us the practical results of his long and thorough study of this particular feature of anti-tuberculosis work. I wish to urge everyone present, however, to visit Rutland and observe a private enterprise which I believe to be fraught with benefit not only to our State but to the whole country, if the methods employed there receive the generous support which they deserve. To my mind no philanthropist can put his money to better use than in developing this form of anti-tuberculosis work.

I wish also to speak again of another phase of anti-tuberculosis work which should interest philanthropists, *viz.*, the establishment of sanatoria for what has been often called "the middle economic group," that is, the people who do not wish, for one reason or another, to accept state aid such as is excellently given in our state and municipal sanatoria and hospitals; people who can afford to pay more than the price asked at these institutions and yet cannot possibly meet the expense of those intended for the wealthy. At the present time there is, as is well known to many tuberculosis specialists and emphatically expressed by them, a lamentable lack of proper accommodations for this class of patients, and it is only by continual reiteration of this fact that we shall meet one phase of the tuberculosis question and make the public realize its importance. This necessity has been questioned by a few, apparently on the ground that comparatively recently in some of our state and county institutions there have been a few empty beds. Such statements in no way weaken the force of what has been stated and only befog the issue. It should be distinctly understood that recent efforts to supply this want in our State and elsewhere are intended for a different economic grade of patients, and are in no way meant to interfere with the admirable work done by our state and county institutions. The intention is merely to fill the gap which exists between accommodations for the very poor and the very rich, and to help the class who will not consent to accept state aid yet need the privacy and more homelike conditions of private institutions where, for moderate prices, these conditions can be found. Speaking for myself, scarcely a

week elapses that I am not appealed to by people who desire such places and I find it often impossible to get what I wish.

The recent endeavor to interest the public in the erection of the so-called Central New England Sanatorium at Rutland, which is intended for this class of patients, has met thus far with the most gratifying success. In these trying times of war taxes, "Victory Bonds," and innumerable calls to relieve distress in Europe, the money already subscribed and the interest expressed show that the public is becoming aroused to the necessity of meeting this problem in every way possible.

I cannot close these remarks better than by quoting the words of one of our most brilliant and most scientific of the younger workers in tuberculosis when he says: "The opportunity for service in anti-tuberculosis work is tremendous; so tremendous as to appal the individual who for the first time casts his eye over the fields to be made over and the roads to be leveled. The opportunities for philanthropy are no less great and in no human endeavor will money spent yield more certain and richer returns. We must have a goal and this goal must be the complete taking over of money and money and still more money, and never cease until the mass of mankind realizes the situation and is responding to it. Then, and then only, can we say that we are in a position to wage a real battle against tuberculosis." Such words coming from one of the younger generation bring fresh courage and enthusiasm to those of us who have grown gray in the fight against tuberculosis. May they stimulate the members of our League to ever-increasing vigor for the work before us.

Original Articles.

PSYCHIC MANIFESTATIONS PRECURSORY TO MENTAL DISEASE, WITH CLINICAL PRESENTATIONS.*

BY ARTHUR H. MOUNTFORD, M.D.,
AND
WILLIAM J. VIVIAN, M.D., WORCESTER, MASS.

MODERN progress in mental analysis has given many the hope of effecting an amelioration or cure of some of the minor psychoses. Papers of a general nature dealing with the principles of mental analysis are found to be very frequent, while citation of specific cases well analyzed are not by any means so often resorted to as it really should be. In this paper, therefore, we have taken up two cases and will endeavor to present the analysis in a clear manner.

It seems that the general principles involved can be better presented by a more extended analysis of one or two cases than by the brief and superficial reading of many such cases. Of course, no two cases of the sort here considered are exactly alike. There are many types with many sub-divisions within each type. In many cases there is a definite doubt between a psychosis and psychoneurosis. Some cases which seem purely psychoneurotic run a definite course with recovery much as do the manic depressive cases. In many of these there is a real danger of suicide and other complicating factors. All that we endeavor to offer is a fairly thorough presentation of two cases of the so-called psychasthenic group.

The first case presented is that of B. C. M., an American, nineteen years of age, who was admitted to this hospital as a voluntary patient February 12, 1919, and discharged at his own request March 7, 1919.

Family History. Because of certain peculiarities of the family, which will be described more fully, it has been impossible to obtain a complete family history. However, there is enough evidence to show that the young man has had the disadvantage of an unfavorable environment, at the least, if not that of a tainted ancestry. The family consists of father, mother, one brother and sister, and the patient. Of other relatives, either maternal or paternal, little is known outside the fact that one cousin on the paternal side is said to be insane. The father is described by his neighbors and others who have seen him as a peculiar man and is known to the hospital physicians through his visits here, at which times his circumstantiality and rambling way of talking was noticed by them. He has been employed for many years in farming and wood cutting, working in various places in Rhode Island, Connecticut, and Massachusetts. The mother is several years younger than the father, and is also described as being peculiar. Some years ago she had a nervous breakdown, the exact nature of which is not known. The

* Read at a meeting of the Worcester District Medical Society at the Worcester State Hospital, Worcester, Mass., April 16, 1919.

sister is a few years younger than the patient, fairly industrious in school, and a good worker at home. She is unusually bright, but of peculiar appearance and actions. The brother, a year older than patient, has acted peculiarly for a long time, which has gradually become more noticeable to those acquainted with him. During the patient's stay in the hospital the brother was admitted in a decidedly katatonic stage of confusion and excitement. He improved only slightly and was later sent home on a visit against advice of the hospital authorities. The home is a fairly pleasant and neat appearing place of good size, and shows the effect of some thrift and industry. All those who have known of the family,—neighbors, school teachers and others, have spoken of their seclusiveness and asocial nature. As far as known, they never have any recreation outside of the home, have no church affiliations, and do not care to have any visitors in the house; in fact, they have been known repeatedly to have refused even to answer a bell or knock.

Personal History. Patient was born in Rhode Island. He had the usual children's diseases such as measles, mumps, and chickenpox. His school life began at about six years of age and continued until he was fourteen. During this time he finished six grades and was in the seventh when he stopped going because of lack of confidence in himself, inability to concentrate, and a keen sense of embarrassment when speaking or reciting lessons. One whole grade was lost because of nervousness. After leaving school he worked on several farming jobs intermittently with mill jobs, the latter being given up usually because of fear that inside work was injurious. Length of time employed on any one job was usually two to three months. There is a history of masturbation beginning at fifteen years of age, practised as frequently as every day or every other day for first year and decreasing from then on. Other than this his habits have been very good.

Physical Examination. Of no particular interest. Neurologically there was found to be a slight increase of the left knee jerk over the right. There were no pupil disturbances and no irregularities of any type. Blood serum negative to the Wassermann test.

Hospital History. During his stay in the hospital this young man always presented a neat appearance and carried himself well. He was inclined to be rather asociable and preferred to amuse himself by reading, walking about the grounds and playing the piano, which he could do only fairly well. He would do a little of the ward work when requested to do so, but never volunteered. There was one habit he had of continually stopping the physicians to speak of his somatic sensations which were numerous and require more discussion.

A mental status taken during residence saw him well oriented in all spheres with a good grasp on his environment. Memory for both recent and remote events seemed not at all impaired. Such schooling as he had seemed fairly well retained, but his grasp on current events was rather superficial and meagre. Reading not unusual. Writing accomplished in rather childish hand. The following characteristic symptoms of neurotic type were elicited:

From early school days there has always been a fear of talking to people, more particularly strangers or mere acquaintances. This apparently arises from a paucity of ideas when attempting conversation and the idea, somewhat vague, that his mind is like an open page. During a conversation he flushes, gets excited, and cannot express in words what thoughts he may have.

There are feelings of unreality of things in general, at times, a sensation of having no past or future and only a nebulous, floating present. There have been some compulsive ideas in the past, such as a desire to count all steps ascended, to step over cracks on the walk, to touch each post passed without fail. These are described as not mere whims, but as actual compulsory feelings.

There are feelings of fear expressed for many conditions, one of which is quite typical of the anxiety neurosis group. On returning home after a stay away of any duration there is a fear for the health of the family, he feels shaky and his anxiety for their health is very keen and not overcome until he actually enters the house and greets his folks. There are several somatic sensations complained of, chief of which is a feeling described as a pain in the left hypogastric region. This is believed by the patient to be incurable, or at least a condition that no one has been able to relieve him of.

He often has the feeling that his lower lip is dead or paralyzed and droops in the middle.

He complains of feeling hungry all the time, says that a half hour after eating a meal he is so hungry that he craves another full meal over again.

No hallucinations either of an auditory or visual type are admitted, neither are there any delusions of persecution, occult, or electrical influence, poisoning, etc., elicited. There have been some ideas entertained by the patient, vague and not deeply grounded, that possibly might be called delusions of reference, in which he thought that others might be talking about him or saying something about his family.

There is considerable insight expressed and the patient realizes that he does not react normally to the different conditions of the outside world.

,In summing up, the seclusive traits and peculiarities of the family, plus a definite psychosis in another member, also the continued effect of this environment, all form an etiological basis to be considered.

The neurotic and psychogenic manifestations are fairly numerous and are expressed in certain fears, anxieties, and morbid feelings. Compulsive ideas and altered somatic feelings, anesthesias, tinglings, and vague pain sensations help complete the picture.

Differentiation from an actual psychosis may not always be possible, though in this case the absence of any hallucinations, or delusions of persecutory trend or of other ideas concerning external influence, also the absence of a definite depression or excitement with the presence of considerable insight would rule it out.

The next case is that of a man who by inheritance has been predisposed to a weakened nervous system. His symptoms began to appear at the period of sexual development and he was constantly under the guiding hand of an over-sympathetic parent, who catered to his every whim. He is the type of man who is unable to stand any exhausting strains and is defective in his recuperative powers. His life has been one of continued effort, without proper exercise and harassed by worry which the struggle for success entails, until finally he gave himself up to a condition manifesting itself in errors of judgment and an abnormal emotional state which has led to unwarrantable fears and a state of anxiety.

The patient, W. H. S., had a previous hospital residence at the psychopathic department of the Boston State Hospital from October 4, 1917, to October 11, 1917, and at the Westboro State Hospital from October, 1917, to August, 1918.

Family History. Father and mother living and well at the age of 73 and 71 respectively. Paternal uncle was at one time in Waverley suffering from a mental breakdown. Maternal grandmother had epilepsy and was also at Waverley.

Personal History. Patient was born in Boston in 1871. Began school early, did not finish grammar school, but went to Chauncy Hall, from which he graduated at the age of 19. Attended the Massachusetts Institute of Technology in the Biological Department for five years, graduated in 1894. Went to Harvard Medical School and graduated in 1899 and received an appointment at the Massachusetts General Hospital, but could not keep up the work there and was given a chance to resign from service. Then he started to practise in Dorchester, remained there about four years. From Dorchester he went to Wayland. He gave up practice in 1905 because of despondency, worked for a while with his father in the office. During the winter of 1906 he returned to the Institute of Technology, taking a special course in sanitary chemistry. In the summer of 1907 he went to Dublin, New Hampshire, and worked in a laboratory. Remained there a year or two. Came back to this State and resumed practice for six months when he again gave it up and was a second time employed by his father. ,In 1897 while in Harvard, he had an attack of nervous prostration and it was necessary for him to go to the Ring Sanitarium. He also had treatment under the Emmanuel Church Movement and also took suggestion treatment. In June, 1917, became a voluntary patient at Waverley; remained there until August. After leaving Waverley he went to Maine where he worked in a store in a lumber camp for about a month. Upon his return he entered the Psychopathic Hospital. From there he went to Westboro, and finally, here to Worcester. There is a history of masturbation since puberty.

Came here on regular papers. Was a neat appearing man of 40 odd years. Answered

questions readily and willingly, but was inclined to be self-accusatory in his remarks.

Physical examination of no particular interest. Blood pressure 126 systolic, 80 diastolic. No neurological irregularities. Wassermann reaction on both blood serum and spinal fluid negative to the test for syphilis. Urinalysis negative.

Since being here he has been up and about the ward daily. Follows the physician around at each visit with some new idea that he thinks he should be punished or condemned for doing imaginary things. He walks about the ward aimlessly all day, occasionally has attempted to employ himself in the industrial department, but his work is of a very poor quality.

Patient is correctly oriented in all spheres. Has a good grasp on his surroundings. Memory for both recent and remote events is unimpaired. Intellectual deterioration has been very slight.

The patient's ideas are all centered about himself. He has a constant fear of punishment for things he imagines he did. This fear that he may have done something wrong arises long after the act has been committed. These fears are the burden of his complaints. Says that he has always been a cheat, both in a business way and during his courses at school, has been a fraud all his life. He does not think he has been honest with the world or with himself. At times he has doubts as to the legality of his marriage. While in Maine he thought he knew of a boat that had a hole in it, he did not say anything about it and he thinks many people may have been drowned because he did not tell about it. At that time he thought people suspected he had stolen stuff from the store where he had worked. This was brought about by the fact that a case of goods which had been received was broken and some of the stuff scattered about, the same was nailed up and labelled, put on a barge, and a day or two after he saw some labels floating around in the water, thought these labels came from the case and thought he was going to be held responsible for the same. Feels that he has caused the death of a great many people and says that he has always exaggerated things. While practising medicine he prescribed calomel which contained corrosive sublimate. Thinks that while the physician here was drawing blood for the Wassermann test he infected the physician and that he will shortly be responsible for his death. Feels that he obtained money from his father by misrepresentation. There seems to be a great deal of doubt in his mind regarding this matter. However, says that one time his father gave him a check for a sum of money and when he indorsed same he got the idea that he also indorsed his father's name on the check and this has caused him considerable worry. At first he excused himself, but now feels that he should be committed and probably put out of the way.

This patient has never been competent, has always been unable to cope with the ordinary conditions; has never been self-supporting, wholly dependent on his father before his marriage and since that time has relied upon his wife. Says he has never been able conscientiously to say he has stood on his own resources. He attempted to do chemical work after his graduation at M. I. T., and later practised medicine after leaving Harvard. He once wrote a play on Southern life. It was put on through influence for one night, he taking the leading part, but it proved to be a flat failure. Thinks we should allow him to go home, contract pneumonia and die, as he is of no use in this world; but, on the other hand, he states he is afraid of death. Feels that former blood examinations done at both the Psychopathic and Westboro hospitals and reported as negative were mismarked, and vaguely believes that he is suffering from syphilis.

At intervals he seems to be somewhat agitated and at other times a little might depressed. On a few occasions he has felt that he has infected the faucets, towels, etc., with excreta and by this means has transmitted diseases to other patients. Sometimes he has seen white dust on his coat which has annoyed him greatly, thinking it was poison placed there intentionally. Oftentimes comes complaining to the physician that he has a great antipathy for the others in the ward and wishes them to be kept away from him. Is very remorseful over the fact that he found T. B. signs in his wife's lungs and has never done anything for her. He never converses with the other patients, neither does he enter into any of their forms of amusement. Occasionally he will be found reading the daily paper. Attempts to care for his own

room, such as making the bed and sweeping, but the work is of such poor quality that it has to be done over by someone else. He admits two attempts at suicide, first at home when he says he tied the cord of a bathrobe about his neck, but this broke before he could carry out his intentions; second attempt was at Westboro State Hospital. While there, broke pane of glass in a framed picture and used a sliver of this to make two punctures in his wrists; he lost considerable blood. Previous to this attempt he had written a farewell note showing that while the act was clumsily performed it was premeditated. However, as soon as the blood began to flow briskly he rushed out on the ward and showed himself to the nurse.

These symptoms point to a psycho-neurosis with a secondary phenomenon of depression. the whole making a state in which the patient is practically inefficient; no definite hallucinations, he has morbid doubts, a good deal of scattering of interests, he is somewhat apathetic, has periods of agitation and depression, not deteriorated, has a feeling of inadequacy and a marked anxiety regarding the ultimate outcome of his trouble.

We feel that the eight years of tremendous study and stress in a technical institution and a medical college, added already to the unstable make-up of the individual has allowed him to drift into a condition which is greatly allied to a definite psychosis. It is fair to presume that had this patient, coming from tainted ancestry, been educated along other lines, where his struggle for success would have been a little less, he might today be a self-supporting individual.

BLOOD TRANSFUSION IN WAR SURGERY IN THE BRITISH ARMY.

BY E. GRANVILLE CRABTREE, M.D., BOSTON,

Major, R. A. M. C. (Harvard Unit); Surgeon in Charge of the Surgical Division of 22 General Hospital, France.

AMERICAN ideas and methods in transfusion of blood were not, apparently, generally familiar to the British war surgeon previous to the war. To be sure, transfusion was done in England in civil surgery, yet its use seems not to have been at all extensive compared with its frequency of use among American surgeons of the same period. Most foreign surgeons, I believe, in England and France, at least, have preferred the syringe method for indirect transfusion and were not familiar with paraffin-coated tubes. In most instances 400 to 600 c.c. of blood was thought sufficient for a patient. Citrated blood was given.

Records of the Harvard Unit show that transfusions by the Vincent modification of the Kimpton-Brown tube were done by Vincent in 1915. More transfusions were done in 1916. During this period the British army surgeon was not doing transfusion. From 1917 until the signing of the armistice, the period in which greatest pressure in numbers of wounded was placed upon our hospital, we found it necessary to establish and maintain a special transfusion team in a special theatre. Patients were more promptly treated by this arrangement with great benefit to mortality statistics and without interfering with work in the main operating room. This latter consideration was important. Patients arriving in extremely poor condition were taken there immediately, then sent to the main operating room as soon as safe operating margin was established. Cases in poor condition from recent hemorrhage or post-operative shock were sent for transfusion before being taken to their wards.

The need of transfused blood is, of course, greatest at front area hospitals. In 1917, Harvard Unit teams were first sent to casualty clearing stations. These teams were equipped with Vincent transfusion tubes and did several hundred transfusions. Other American surgical teams arrived as fast as American units reached France, all similarly equipped and familiar with the value of blood in the type of cases coming to the surgeons in these hospitals. Several hundred to 1,000 c.c. of blood was being given instead of 500 to 600 c.c., repeated transfusion was seen to be of great value, and the paraffin coated tube demonstrated to be more rapid and therefore a more efficient means of giving blood than either citrated blood given by gravity or the syringe method of direct transfusion.

The opposition to transfusion at first shown by army authorities, because of the belief that slightly wounded, therefore available, men were being incapacitated by serving as donors, was short lived. Arrangement was soon made and notice published in general orders that donors

should receive two weeks' regular leave for giving blood. The men, of course, had never refused to give blood when blood was required, and giving of leave for "a little blood" only popularized it. An Australian sergeant from a regiment lying in support of the Canadians at Cambrai came to me one morning to say that his *whole company* would like to be used as donors. Donors have never been unobtainable.

During the winter of 1917-18 transfusion was put on a firm basis in the British Army. Arrangements were made in London and Paris for the manufacture of transfusion tubes for the Army and a supply sufficient for its needs maintained. Casualty clearing stations and base hospitals were equipped and the surgeons were instructed, where necessary, in the technique of grouping blood and transfusion. Clearing stations had special transfusion teams either in their resuscitation wards or in a special "transfusion tent" which, working day and night shifts when necessary, did large numbers of transfusions and intravenous injections of fluids. The number of lives saved by transfusion during the fighting of 1918 alone is very large. In a single casualty clearing station thirty-five to fifty transfusions each twenty-four hour period are common during active fighting.

In the interval between the rushes of wounded these hospitals were allowed to keep fourteen grouped donors on light duty about the hospital as a nucleus for transfusion work at the beginning of the next rush of wounded.

Transfusion on so large a scale as was that in the British Army during 1918 has given facts about the value of blood and the comparative value of fresh blood and fluids intended as substitutes for blood which will be of value in the treatment of accident cases in civil life. One needed but to enter a resuscitation ward in any front area hospital during active fighting to find any type of hemorrhage and shock case ready at his hand and often in excess of his ability to cope with comfortably. From these cases experience soon demonstrated where effort could be expended with most profit and where transfusion was unjustified. Of the many factors contributing to shock, in wounded men in field hospitals under the rush of war conditions, it was found possible on a large scale to combat pain, loss of blood, cold, hunger, and physical exhaustion. These factors were usually all present in front area cases. In unoperated cases arriving at the base hospital one usually found the patient had been fed and had not recently been subject to extreme cold. Poor condition was usually due to loss of blood and the added factor of sepsis. In some instances loss of blood was remote, occurring at the time of injury, yet the patient had had a safe operation margin, had survived operation in the front area, yet the added burden of sepsis had been sufficient to wreck him. In other instances moderate loss of blood at the time of injury when accentuated by thigh amputation with a wide open septic stump produced a total which gave to the patient the appearance of profound hemorrhage. Thigh amputation was always to be considered as a serious loss of blood in a badly hit man in poor condition.

Pain as a rule was early attended to immediately a man reached an aid post in the front areas. He was given morphia often in large doses and broken bones fixed. Yet chest and abdominal cases as well as fracture cases found ambulance hauls over rough roads trying and arrived not only in great discomfort but in very poor condition. Warm food or drink helped all. Shock cases often showed rapid recovery on fixation, morphia enough to give sleep and heat. Without these all attempted restorative measures fail. In severe shattering injuries to bone where fixation is next to impossible, early operation followed by immediate careful treatment of shock was clearly more profitable than awaiting a long slow recovery precarious throughout its course. An hour's heat and morphia and 700 c.c. of blood almost invariably gave a safe operation margin. Five hundred c.c. more blood immediately following operation restores the patient to something near his pre-operative condition.

We have believed that our cases were better risks after scopolamine given one hour before operation. This drug has the advantage of saving a badly wounded man the sight of army operating rooms, which is disturbing. The patient almost always stated next morning that he did not remember much about his surgical experience.

Considerable information has been accumulated as to the relative value of fluids intended as substitutes for fresh blood. The intravenous use of saline was unsatisfactory and even harmful. Subpectoral injections were unsafe. Slight improvement, noted immediately following intravenous saline, was most often followed by collapse within a half hour to a condition as

bad or worse than before it was given. Gum and glucose solutions are useful but are *not* substitutes for blood. They are retained in the circulation for sufficient time to enable some patients to maintain their gains in condition. Bicarbonate of soda in glucose solution has proved of inestimable value when given alone or together with transfused blood in severe gas gangrene cases, particularly where vomiting is present.

As a result of treatment of severely wounded in the British Army, the following routine was at the termination of the war considered to afford the severe case his best chance of recovery:

In front areas where shock predominates:

1. Cases which arrive at hospital in poor condition but not in extreme shock, which show little improvement from a half to three-quarters hour of rest, heat, fixation and morphia should receive 700 to 800 c.c. of bicarbonate of soda in glucose or gum solution. For many this treatment is sufficient. These cases usually have lost little blood, yet, if not carefully cared for, may be lost.

2. Cases showing little improvement after intravenous fluids demand immediate blood transfusion. A second intravenous fluid is unwise. Transfusion insures a wider margin of safety for operation in these cases which at best must be considered doubtful surgical risks.

3. Cases in extreme shock, particularly where there has been some loss of blood and where amputation may be necessary, require immediate transfusion and usually do best on early operation. Patients in extreme distress, as from crushes with loose fractures, will not show much improvement until pain is relieved,—a difficult accomplishment by anything other than removing the cause by operation. Unoperated, complete sudden collapse with death may intervene at any stage. I have found it safer to operate immediately the patient was warmed a little. In bad cases operation and transfusion were done simultaneously. My nurse did the transfusion if other assistance were unavailable. A striking thing noted by a number of observers is that after a patient has been allowed to sink into a condition in which life is almost extinct he will remain for days or even a week or more so narrowly balanced that a painful dressing may almost cause collapse in a man who at other times looks very well indeed. These cases often carry high pulses for many days, although neither a marked decrease in hemoglobin nor sepsis be present. Even moderate length operations carry a high mortality in these cases. It is better for the patient to be put to bed *immediately* his condition begins to change for the worse, if the nature of his wounds will permit, and to bring him out a few hours later. I have operated three successive days on one man with severe multiple wounds, transfusing 700 c.c. of blood after each operation. This patient may not be a pleasant looking relict of the war, but his life was saved.

4. In apparently moribund cases where loss of blood has been extreme, immediate transfusion of 1000 or even more (I have used up to 1300 c.c.) is indicated. Transfusion may be technically difficult owing to collapsed veins. Saline can, however, usually be forced in. Three hundred to five hundred c.c. of saline may be given while the Vincent tube is filling. The presence of this quantity of fluid in the veins often decides success or failure of the attempt to force blood into collapsed veins. Experience has shown that for most of us attempts to judge as to what cases are hopeless are unsafe. Remarkable recoveries are common. At Amiens three hemorrhage cases arrived at my tables practically simultaneously; all were urgent. Three transfusions, perhaps not done aseptically, two running at one time, were done with two recoveries.

5. Patients with severe wounds but offering a safe operation margin, who survive operation in fair condition, often fail and die the second or third day with the onset of sepsis. Seven hundred to 800 c.c. of blood and the free use of intravenous bicarbonate of soda in glucose will tide such cases safely over.

6. Abdominal cases where shock is extreme from loss of blood into the peritoneal cavity due to wounds of large mesenteric vessels or liver, if opened quickly and the hemorrhage controlled, then tranfused while the operation on the abdomen is being completed, will leave the table in better condition than when they entered the operating rooms.

In base hospitals farther from the line than the casualty clearing station shock is second in importance to sepsis. In the latter hospitals

hemorrhage and shock are the indications for blood, while in the former, recent or remote loss of blood and sepsis are the indications for transfusion. I believe that blood alone is indicated in these cases except in so far as bicarbonate of soda in glucose in addition to blood is indicated as a special measure to combat the toxicity of sepsis. I believe transfusion to be indicated in the types of cases seen in base areas for:

1. Anaemic cases, anaemic from previous loss of blood, amputations, sepsis or a combination of these, which have open wounds which will require to heal by granulation. These patients show rapid pulse and dry wounds. Seven hundred to 800 c.c. of blood will produce marked change in the patient's general condition and the rapidity with which his wound becomes red, moist, and granulating.

2. Anaemia, often seen in multiple wound cases when none of the wounds are severe, yet all are septic, is a well known war condition. The patient is pale and wastes away. He runs a swinging, irregular, septic temperature chart and a high pulse. Repeated transfusions of 500 to 600 c.c. of blood is followed within a few days by maintained normal temperature and pulse and marked improvement in general condition of the patient. Wounds become moist and discharge pus more freely and soon granulate.

In these cases metastatic abscess, appearing in a few days after transfusion, are not uncommon. I believe this occurrence of abscesses neither to represent new foci of infection nor faulty technique but to be due to the patient's increased ability to form pus about foci of infection already existing.

3. Post operative hemorrhage in deep subsiding gas-infected wounds, occurring days after the primary operation, has been the trial of the war nurse and surgeon alike. The contrast in appearance of the bled out patient who reaches the operating theatre, and the same patient half an hour later as he returns to his ward, has done much to popularize transfusion in the British Army.

Experiences of this war have only given further proof that transfusion is of no value whatsoever as a curative measure in septicemia.

OCCUPATIONAL THERAPY.

By Bayard T. Crane, M.D., Rutland, Mass.

The public and medical profession of Massachusetts appears to be quite uniformly educated to the necessity of sanatoria and hospitals as the mainstay of successful treatment of active tuberculosis. Such medical institutions will doubtless remain of prime importance until that invisible day arrives when a new discovery will displace the hygienic method of treatment of the disease.

This paper assumes that medical institutions for the treatment of tuberculosis are essential at the present day. A great responsibility, therefore, rests upon these institutions in electing to harbor a great group of suffering humanity.

These patients will possess all degrees of intellectual power; all shades of moral and spiritual force; all degrees of ability to suffer mental anguish on one hand, and to participate in enjoyment on the other. They will not only possess all the ability to suffer and to enjoy, and all the power to sin and saint, but they can be depended upon to react to suffering, enjoyment, sinning and sainting, according to the familiar laws of all human beings. In the words of Shylock,—have they not,—

"Hands, organs, dimensions, senses, affections, passions? Fed with the same food, hurt with the same weapons, subject to the same diseases, healed by the same means, warmed and cooled by the same winter and summer" as an ordinary mortal is?—(Merchant of Venice, Act III, Scene 1.)

In them pain will create outcry or fright. Monotony will produce depression, discouragement or desperation. Uselessness will break down initiative and ambition. A morbid environment will cause depression, perhaps desperation and perhaps departure. An ugly environment will create restlessness. Family and financial worries may wreck the treatment altogether.

To handle successfully the various natures that come to a large sanatorium requires a rare, variegated, chameleonic personality on the part of the administrators, and the task is rarely accomplished by any of us. We meet trying cases where the friends, the family, the clergy, the nurse, and the physicians, all to-

gether, may fail utterly to hold the patient at his task of getting well.

An intelligent psychological study of the extreme cases would doubtless reveal many actual abnormal personalities wholly unrecognized by the family and physician, but how can the overworked and undermanned medical staff go into all these intricacies? No,—the physician's main function, he may say, is to heal the lungs. His first and great commandment is that "fresh air, food, and rest will cure the disease." These are the fixed established rules of the sanatorium, and the patients are exexpected to adhere to them, and in the language of a prominent specialist (shall I say of the "old school"?) "If the patient has not the moral stamina to stand them, then that is his loss and lookout."

I am not pleading for a modified method of treating tuberculosis, so tame and so softened as to be actually devitalizing. I am rather speaking for an addition to existing methods of treatment of tuberculosis which will expand the scope of the treatment so as to help to meet the individual patient more on his own terms, if possible, and so as to enroll the cooperation and interest of a larger proportion of them. I am pleading for a method which aims to further individualize with the temperament of each patient so he may submit to and endure the severe requirements of the treatment through the long, long period of time necessary, and which aims to satisfy the family and friends that unusual efforts are being made to make the treatment tolerable to the patient. It is an attempt to instill in the treatment enspiriting influences created by diversion, by occupation of mind, by stimulation of flagging interests, and reëducation of faith and self-confidence. It is a rare patient who is sufficiently resourceful to be self-propelling, so to speak.

In short, occupational therapy,—for this is perhaps the best name of the procedure for which I speak—has proven itself of sufficient value to be included as a remedial agent of considerable importance in institutions for the treatment of tuberculosis. The fact that an institution commits itself to occupational therapy indicates that the institution is feeling a keener responsibility toward the personal problems of the patients.

Let no one assume that occupational therapy will be effective in all cases, nor that it is a simple task to install, organize, and continue a model department of it. But fifty per cent. (50%) of the rank and file of patients can be expected to participate in such a system and in a small per cent. (not over 5%) some very strikingly beneficial results will be obtained from it directly. Some instances will occur where long lasting fever will fall to normal directly as a result of the method. It can be prescribed frequently by the physician to curb the restlessness of fiery and temperamental patients. It is frequently educational along esthetic lines, thereby inciting a new cultural interest in the patient's life that might well become an avocation. It may possess the element of surprise or may stimulate mild rivalry between patients. It is within proper limits, restful, because a change, and it helps to kill time." It brings the patient in contact with a person (the instructor) whose interests are those of the outside world, and it thereby makes a break in the treadmill of invalidism. It makes the patient a creator, a doer, and not a parasite. It assists in improving discipline in difficult cases, and is a preventive against some of the mischief which idle hands may find. It broadens the bond of interest between the patient and his overseers. It creates interest and mental development by its progress from the known to the unknown.

Hand-made pottery, hand-loom weaving, basketry, and wood-carving have afforded the most useful and suitable forms of occupational therapy thus far for our patients at the Workshop of the Rutland Private Sanatorium Association.

INDUSTRIAL SANATORIUM.

If occupations have advantages for purposes of treatment as just described, the question will naturally arise, "Can not occupations for patients be made to serve a larger purpose? Why can not occupations be made utilitarian as well as therapeutic? Why can they not be made remunerative so as to reduce the cost of maintenance? Why can they not be educational so as to help prepare the patients for a new or altered occupation which he may have to follow after discharge.

An experiment has been carried on in Rutland, Mass., under the auspices of the Rutland Private Sanatorium Association, for several years. The institution started as an agricultural

and handcraft colony to advance the physical, mental, and economic welfare of convalescent tuberculous invalids. The movement has been diversional, curative, educational, and economical. The plan operates as follows: During the early stages of sanatorium treatment the patient is provided with occupational therapy in the form of weaving, pottery, basketry, and wood carving, etc. This is carried out either in the pleasant workshop, to which certain patients are transported by automobile, or at the private sanatorium, if the patient is confined to bed, and unable to travel. Our aim has been to specialize on crafts that were remunerative as well as therapeutic. Products from the hand looms answer these requirements perfectly. Saleable rugs, ladies' hand bags, table runners, and bed spreads have been produced. By the time the patient spends ten hours per week at one of these crafts he becomes an asset to the workshop. That is, ten hours of his labor per week are worth what it costs to instruct him, transport him to the building, plus his share in general expenses. He, therefore, is entitled to compensation for any work over ten hours per week.

Inasmuch as he should be able to work four or more hours a day before he is in condition to leave the sanatorium, it is apparent that he may be able to earn a tolerable return from these crafts while still taking active treatment.

But patients' labor is valuable in many ways other than in hand crafts, as in household and office, automobile, care of grounds, publicity work, etc. In fact, it has become apparent that occupation of convalescent patients is advantageous in so many ways that we have established an industrial sanatorium which is operated as follows:

When a patient has improved to the point that he is able to exercise about two hours a day, he is eligible for transfer and admission to the industrial sanatorium, provided he has absorbed the knowledge of how to live properly and provided it is important for him to reduce expenses of treatment. The industrial sanatorium combines opportunity for hygienic living with opportunities at self help through occupation. The living cost is remarkably low since the patients, being convalescent, can thrive on simple food, and also because the necessity of nursing and medical supervision is markedly reduced, and bed treatment is not required. The patients realize the plan is co-operative and willingly assist in many tasks which reduce expenses. The patients are anxious to be admitted so as to get away from the air of invalidism pervading an ordinary sanatorium, and because the rigidity of rules common to sanatoria is somewhat loosened. Then, too, there is the diversion from being occupied, as well as the gain that comes from payment for any work performed; also the opportunity to test one's strength at actual tasks preparatory to a return to ordinary occupations. If necessary to continue hygienic life for a period of years, the plan offers a maximum number of advantages.

The plan improves the morale in the ordinary sanatoria because patients realize that only proper conduct while there will make them eligible to the industrial sanatorium.

The varied occupations attract the family of patients also to a degree, and thus enable the family to be brought together under model, hygienic conditions, and under adequate medical oversight. Perhaps the greatest single advantage of the plan is the inducement it affords for patients to remain under treatment for a much greater length of time. This, then, alone perhaps justifies the entire scheme.

About ten per cent. (10%) of my patients were being treated in the industrial sanatorium in the year 1918, and the average cash earnings per patient per week was $12.04. The weekly cost of maintenance ranged between $10 and $12. (The per capita cost at the State Sanatorium, in 1918, was $13.78 plus.) It is thus seen that about 10% of these patients were able to support themselves while taking treatment. If this system were to be adopted by the State and the same result obtained, it would mean the elimination of 10% expense.

RESIDENTIAL OCCUPATIONAL COLONY.

Our plans call for an expansion of the industrial sanatorium idea to the establishment of a residential occupational colony, or a tuberculosis town, with a variety of industries, both indoor and outdoor, with model living quarters for the worker and his family if desired, and with the necessary amusements, educational, and religious facilities, and all under adequate medical supervision at a distance from congested districts and the sea coast.

Medical Progress.

REPORT ON DERMATOLOGY.

By JOHN T. BOWEN, M.D., BOSTON.

RECENT ADVANCES IN DERMATOLOGY IN CONNECTION WITH THE WAR.

MACLEOD of London deals with this subject in a recent article in the *Practitioner*.[1]

1. *Dermatitis from High Explosives.*—The dermatitis produced by these substances is of practically identical type, although the associated staining of the skin may be characteristic. *Tetryl* is a very strong chemical irritant, especially in the form of powder. It causes in those who work with it a yellow or apricot staining of the skin and of the hair. The dermatitis usually appears within a fortnight of beginning to work with the substance, varying from an erythema to edema and deep-seated vesiculation, associated with a very severe type of itching. A marked susceptibility is produced in those who have once been poisoned with it and is met with not only in the workers themselves but in people who handle soiled clothes which have been worn in the factory. The eyelids are very apt to be affected and there is often conjunctivitis and irritation of the mucous membrane of the upper respiratory tracts and of the stomach.

Trinitrotoluene. This is given off in the form of a fine dust in filling canisters and shells, which, coming in contact with the skin of the worker, gives rise to a severe type of dermatitis, and may by absorption result in toxic and even fatal symptoms. It may, like tetryl, be inhaled or swallowed with severe resulting effects. The eruption is often of a papulo-vesicular or bullous type, and is apt to become infected secondarily. There is also a yellowish staining, not so intense, however, as in the case of tetryl. The parts not covered with clothing are the most affected and it is often especially severe about the wrists and neck. There are often serious general effects, in the form of toxic gastritis, toxic jaundice, and toxic anemia. Idiosyncrasy seems to be especially marked in this form, as some skins are completely immune to it, while with others it appears at once and recurs on the slightest exposure. It is most common in hot weather, and in oily skins.

Lyddite. In this the irritating effect is due to the picric acid that it contains, which stains the skin a yellowish or greenish color. Several cases came under the observation of the writer and others in London in June, 1917, as the result of handling a powder from high explosive bombs dropped in the raids. In all of the cases a staining of the skin occurred at the time of contact with the substance, while the dermatitis did not appear for about ten days. In many of the cases the dermatitis was of a very severe type, preventing sleep, and occurring on the face, hands, and fingers especially. It healed rapidly, however, under soothing local treatment.

2. *Skin Affections Met with in the Army in France.*—Reference is made to MacCormac's paper at the Royal Society of Medicine in 1917, which has already been noticed in this JOURNAL. All emphasize the frequency of scabies and pediculosis as well as seborrhea and secondary infection.

3. *The Open Method of Treating Burns.*—The number of cases of burns has been very large owing to the added agencies of liquid fire, petrol, etc., and in connection with aeroplane accidents. MacLeod thinks the "open method" is in some respects preferable to the paraffine treatment, the principle being that of allowing healing to take place under a natural crust. It is particularly applicable to burns of the leg and face, and to the granulating surfaces which occur after the separation of the eschar. There are no dressings used, but the raw surface is exposed to the air and simply powdered with a bland aseptic powder, which cakes up with the discharge to form a crust under which healing takes place. As a powder, sterilized stearate of zinc, or magnesium carbonate may be used. To make the powder adherent, 10% of paraffin may be added. This powder is added from time to time by a dredger or insufflator until a thick, coarse, uneven crust is formed. The crust once formed is left alone, and allowed to dry up and separate spontaneously. A slight disadvantage of this method is that there may be an offensive odor which may be neutralized by the addition of an essential oil to the powder or by having a deodorizing mixture in proximity. The method does away with the need of periodical dressings and leaves the wound at rest, so that the new growth of epidermis is not interfered with frequently, as is ordinarily the case. Also the pressure

of the crust restrains the formation of exuberant granulations, and conduces to a supple scar. This treatment is of greatest value when all dead tissue has sloughed away and there is a raw, granulating surface, although it is applicable in the second degree burns and in the early stages of those of the third degree before the eschar has become separated.

SKIN LESIONS PRODUCED BY MUSTARD GAS.

Warthin and Weller[2] of Ann Arbor have conducted a series of investigations of the gross and microscopical pathology of the cutaneous lesions produced in man and animals by the direct application of this substance in its liquid form.

Of all the forms of gas employed in the war the most important one has been mustard gas (dichlorethylsulphide). This substance was first made by Victor Meyer in 1886 and described in the report of the German Clinical Association. It was first used on a large scale at Ypres in July, 1917. The symptoms of mustard gassing are described in the British Army reports as an initial tendency to sneeze, without irritation of eyes or lachrymation, with a gradually increasing nose and throat irritation, followed after about twelve hours by a free discharge of mucus from the nostrils, painful irritation and inflammation of the eyes, and occasionally vomiting. Many men had pain in the forehead and stomach. Small blisters may form on the face and neck; the skin of the thighs is occasionally red, sore, and sometimes blistered. Contact with fragments of shell and with the earth near shell holes may cause blistering through the clothes. None of these lesions manifests itself at once; it develops after several hours. The pain in the eyes may diminish after 24 hours, although acute inflammation may persist several days. In severe cases bronchitis and pneumonia may develop after 36-48 hours. There are usually no deaths under 24 hours. Prolonged exposure to small concentrations of the gas causes laryngitis and loss of voice, sufficient to put men out of action. Of the men affected, practically all have conjunctivitis, about 95 per cent. have throat and lungs affected, and about 70 per cent. show skin burns. After six weeks the skin lesions are usually healed. The eye, pulmonary, and cardiac conditions improve more slowly.

The results of the writer's experiments are as follows:

1. Dichlorethylsulphide (mustard gas) is an escharotic, specific in its action upon the epidermis and tissues of the corium, particularly upon the endothelium of the vessels.

2. The lesion is a chemical burn unlike that produced by heat, electricity, or the ordinary corrosives such as sulphuric, nitric, or hydrochloric acids, or strong alkalis. Of all these agents the effects are most closely allied to those of hydrochloric acid, but are much greater in intensity. It differs from a heat burn in the absence of thrombosis, in the greater degree of fluid exudation, in the greater moistness of the affected area, and in the fact that the necrosis as shown by the loss of nuclei requires hours or even days, for its complete development. The coagulated, shrunken, and cooked appearance of the tissue in heat burns is not apparent in the tissues of mustard gas burns.

3. The vessels in the affected area are severely damaged and collapsed and there is a local anemia in the earlier stages, with a marked fluid exudation and leucocyte migration. The process is non-hemorrhagic and non-thrombosing.

4. In main the necrosis of the epidermis is usually evident in two hours, through the hydropic change in the epithelium and early vesicle formation. There is no deep edema. It is confined to the epidermis and to the papillary layer in the early stages.

5. In animals the intense and deep edema is most striking and altogether different from that seen in man. Vesicle formation was not noted by us in animals.

6. The deep penetration of the smallest quantities applied to the surface is a most striking feature. There is an undoubted entrance through the hair follicles, sebaceous, and sweat glands.

7. The slowly progressive character of the necrosis is a specific characteristic, the height of the necrosis being reached five to ten days after application. This may, in part, be explained by contraction and death of the vessels with resulting anemia in the affected area.

8. The painlessness of the lesion is also a marked characteristic. This may be explained by the edema and degeneration of the nerve endings in the affected portion.

9. In none of our animals was there any conjunctivitis or irritation of the respiratory tract produced by the cutaneous applications.

We believe that the conjunctival and respiratory lesions are due alone to the direct action of the mustard gas and where animals are protected from the vapor no lesions in these organs will result, no matter how severe the skin burn.

10. Contrary to the statements of certain English and French observers, the admixture of water does not increase the escharotic action, but if the oil is immediately washed away, the lesion is greatly reduced in intensity. Washing within two minutes with tincture of green soap may entirely prevent the lesion, or there may result only a slight hyperemia.

11. The lesions observed in the axilla, between the fingers and toes, around the genitals and between the thighs of men gassed in action are probably due to the greater moisture of these parts from perspiration, and the resulting re-solution of the gas.

12. The slow healing is probably due chiefly to the vessel injury and the relatively slight leucocytic demarcating infiltration. In this respect the lesion is strikingly like an x-ray burn of the skin.

BROCQ'S VIEWS ON ECZEMA.[3]

Eighteen years ago Brocq published his first study of the question of eczema, and since that time there has been relative silence on this subject which excited so much controversy from 1886 to 1900. It may be said that nothing of great importance has appeared that concerned these pathological forms, with the exception of some publications upon microbic dermatoses of eczematous appearance. Believing, in 1900, in the existence or a distinct morbid entity called eczema following to a considerable extent the views of the great masters of the French school, Brocq experienced, in 1904, a change of view. He considered it to have been shown that a number of common dermatoses, such as urticaria, various forms of pruritus, the eczemas, and psoriasis, could not, at least at the moment, be regarded as sharply defined diseases, but rather as "syndromes," *e.g.*, as combinations of several morbid cutaneous reactions, which are grouped and combined in different ways, and have a general evolution of a sufficiently special character, so that they present the appearance of a distinct disease. In 1911, Brocq, in collaboration with others, maintained that all the subjects of a papulo-vesicular eczema exhibited a certain amount of renal insufficiency, and in nine cases out of 10 gastro-intestinal fermentations. Yet a careful analysis shows that these troubles exist most frequently in people who do not exhibit a papulo-vesicular eczema, and that other factors as yet ill-understood, which we are still forced to characterize as morbid predisposition, are necessary to produce the eruption.

Brocq has maintained since 1900 that the name of eczema pure and simple should be reserved for a dermatosis whose elementary lesion is a vesicle of special character, formed in the deep layers of the malpighian layer by an intercellular edema. It is characterized clinically by its small size, and extreme irregularity of disposition upon the affected surface. To demonstrate this lesion in the inflamed and oozing forms, the affected portion of the skin should be dried with a soft cloth, and immediately afterward the surface covered with a leaf of cigarette paper, upon which a glass compressor is applied, and the appearance observed through this compressor. In the case of the so-called dry type of eczema a very light curetting may be necessary before applying the paper. In this way one may observe on the leaf of paper the vesicles that pepper the affected surface. If these vesicles are carefully studied they will be found to have an individual aspect and are not to be confounded with the vesicles of true dyshidrosis or with those of artificial eruptions of external origin.

The elementary lesion of papulo-vesicular eczema is a small red papule, situated often on a reddish urticarial base, the size of a small to medium pin's head, having at its apex a central vesicle, which breaks either spontaneously or from scratching, emitting a yellowish serum similar to that of true eczema, and more or less abundant, according to type.

These elementary lesions may be discrete and scattered without order over the surface, or they may be aggregated in places to form one or more patches, the so-called nummular forms.

Brocq considers the so-called seborrheic eczemas a form intermediate between eczema and psoriasis and has given them the name parakeratoses psoriasiformes. He distinguishes two forms, one a dry and scaling variety, in appearance much like psoriasis; the other presenting a surface exhibiting vesicles, like a true eczema. The characteristic elementary lesion of these dermatoses is a reddish macule, covered with

scales less compact than those of true psoriasis, which shows peculiar attributes when scratched or curetted. When the lesion is very dry in appearance the curetting is followed either by a slight purpura or a few fine points of serous oozing, and these appearances are produced before a thin pellicle is reached, unlike what we are accustomed to observe in psoriasis. In other cases, more or less numerous and prominent vesicles are formed on the red and scaling surface. These different forms exhibit, according to Brocq, intermediate links between pure vesicular eczema and psoriasis. In some cases of seborrheic eczema, the early lesion may be a small bulla, or small papulo-vesicle, or pustule, —but the characteristic elementary lesion is the red and scaling macule. In many cases there is a secondary pustulation from complication with pyogenic cocci. Hence the importance of recognizing this infection and instituting appropriate local medication before treating the underlying primitive dermatosis.

Brocq insists upon the pathogenic and etiological complexity of eczema, and upon the consequent fallacy of attempting to draw sharp lines of distinction. Yet an objective analysis of the cutaneous lesions will give much useful information. In true vesicular eczema it seems to be chiefly external agencies that are active: traumatism, contact with irritating bodies, perhaps micro-organisms—in any case direct action on the integuments of substances whose contact is no longer tolerated by the skin of which the power of resistance seems to be diminished. The artificial vesicular eruptions of external causation are not to be confounded with true eczema, but it is certain that in subjects predisposed to eczema, irritating external agencies (including wind, sun, dust, etc.) aid greatly the production of a pure vesicular eczema. In the papulo-vesicular form, the dominant etiological factors seem to be accidental and auto-intoxications, and shocks of the nervous system. In almost all the subjects of this form of eruption there are gastro-intestinal fermentations and a certain degree of renal insufficiency. In the "parakeratoses psoriasiformes," the predominating pathological fault seems to be troubles of general nutrition and in particular an excess of nitrogenous food. When the pruritus is so violent that the cutaneous lesions take on a lichenoid type, there is present an intense nervous excitation, which is accentuated by errors of diet (the excessive use of tea, coffee, or chocolate) or by over-exertion, or great moral or physical shock. The writer repeats his reservation that these propositions are not absolute, and that in the causation and treatment of eczematous eruptions only broad principles can be laid down. But if, in the course of an eruption of the type of pure vesicular eczema, there appear outbreaks of papulo-vesicular character, one should inspect the condition of the kidneys and of the digestive tract; if a lichenoid condition is produced, the condition of the nervous system should be inquired into; if a seborrheic condition is apparent, it should be seen if the diet is most suited to the patient, and does not contain too large a portion of proteids, etc.

These broad principles will serve as a guide in a very general way to the treatment both internal and external. When there is present a very acute eruption with great cutaneous irritation, local medication by means of drying powders should be resorted to, as a rule, in a large majority of the cases, whatever may have been the original form of the eruption, or else emollient ointments, or moist emollient applications, together with internal medication are indicated.

When these acute inflammatory symptoms have abated, then each type of eruption calls for its distinctive treatment. A true oozing, vesicular eczema may be especially modified by crude coal tar, the papulo-vesicular type by coal tar varnishes, or by zinc pastes with the addition of a 20th to a 50th of coal tar; the "parakeratoses psoriasiformes" are amenable to ichthyol, thigenol, tuminol, coal tar; and in their moist forms to pastes containing both coal tar and vegetable tar.

MULTIPLE SKIN METASTASES FROM CANCER OF INTERNAL ORGANS.

Suzaki,[4] working in the Kyoto Imperial University Medical School, in Japan, reports five cases of this affection which had come under his personal observation, and gives his analysis of 110 cases, collected from the literature. Metastases in the skin are so rare in cancer of the internal organs that writers have recorded many thousand cases without occurrence of these secondary tumors. Of the author's five personal cases, four were in males, four men between 40 and 50 years of age, and one be-

tween 60 and 70. There was an autopsy in four of the cases, which revealed a primary cancer of the stomach in three cases, and of the rectum in one case. The remaining case was, perhaps, cancer of the stomach. As to localization of the skin metastases, the thorax and abdomen were found to be the parts most frequently implicated; in four cases the metastases were tuberous and localized mostly in the subcutaneous tissue, while in one case there were diffuse flat infiltrations in the corium and subcutaneous connective tissue. Four cases were adeno-carcinoma, and one scirrhus. The metastasis seemed to be in some cases hematogenous, in others lymphogenous. In three of the cases the patients died within about four to six weeks from the time of the first appearance of the skin metastasis, in the two other cases the time was not known.

From the statistical study of 110 cases, the writer found that in Japan there was a great preponderance of male over female cases, the reverse of what is found in other countries. This result accords with the statistics of cancer in general, which is much more common in males than in females in Japan, while the female sex in all other countries gives the greater number of cases. From 30 to 40 is the age most frequently affected. In more than one-half of the cases the primary tumors are located in the digestive organs, and most frequently in the stomach. Next come the uterus, lungs, and ovaries. As to localization it may be said that skin metastases develop mostly in the cutis and subcutis simultaneously, or in the subcutis only. These skin metastases are mostly in the nodular forms, while diffuse infiltration is very rare. The nodules vary from the size of a pea to that of a walnut, as a rule, miliary lesions being very rare. In some cases the infiltrated areas are very large, spreading over a large part of the thorax or abdomen, which seem to be the favorite seats of the skin metastases. The abdomen and chest are more frequently affected than the dorsal and lumbar regions. It is more common on the extensor than on the flexor side of the limbs. When the skin metastases occur the prognosis is naturally bad, and investigations concerning the duration of life from the appearance of the skin tumors to the death of the patients show that they mostly die within three months.

DERMATITIS FROM THE TOMATO PLANT.[5]

The list of plants that may produce a dermatitis in susceptible subjects is constantly being added to. The most comprehensive treatise on this subject is that published by James C. White in 1887 under the title "Dermatitis Venenata," an account of the action of the external irritants upon the skin. Since that was published, Dr. White himself has added considerably to his list of poisonous plants and notices of new observations have been appearing from time to time. Lain of Oklahoma City read a short paper at the meeting of the Section on Dermatology of the 69th annual session of the American Medical Association in Chicago, in June, 1918, on this subject. The writer states that his residence in the South, where the vegetation is prolific, has given him the opportunity to study and observe the effects of various plants and vines upon the skin. For the last few years he has met with a form of dermatitis on the face and hands of gardeners and dealers in vegetables that it has been very difficult to account for. Finally he was led to the discovery that the ordinary tomato plant, which is common in most gardens in the season, seemed to be connected with this form of dermatitis, and that it appeared in several cases after gathering this vegetable from rank and moist vines. The botanical name of the tomato plant is lycopersicum esculentum. It was for years considered unsuitable for food and was not generally cultivated for this purpose until the middle of the 19th century. It belongs to the family of night shades and to the Solanaceae group. Nearly all of this group is said to contain poisonous narcotic alkaloids or glucosides, which may be converted into a certain amount of hydrocyanic acid. The eruption that has been traced to the tomato plant does not differ, apparently, from the ordinary type of dermatitis venenata. The eruptions seen have occurred chiefly on the dorsum of the hands, the wrists, and both surfaces of the forearms, and are of a papular and small vesicular character. The poisonous effect seemed to be produced generally by exposure of the hands and forearms among the vines when the plants were wet with dew in the early morning and this moist condition seems to be a favoring element in the case of other infectious plants. The writer thinks it improbable that the same plant is equally infectious in

all places, or at all seasons of the year, and confesses that his conclusions are drawn from a small number of observations, and that it is strange that others should not have met with this condition before.

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Book Reviews.

The Elementary Nervous System. By G. H. Parker, Sc. D., Philadelphia and London: J. B. Lippincott Company. 1919.

In the lower multicellular animals are represented the simplest structural and functional examples of the elementary nervous system. This monograph on experimental biology, "The Elementary Nervous System," attempts to interpret through the activities of the simpler animals the more complex forms of higher animal forms. Three simple phyla of the multicellular animals, the sponges, the coelenterates, and the ctenophores, are the basis of observations presented in this volume. The book is divided into three sections: the first dealing with effector systems, illustrated by sponges, with a consideration of independent effectors and neuroid transmission in higher animals; the second, describing receptor-effector systems and explaining the neuromuscular structure of sea-anemones and their nervous transmission, the nerve net, and hydroids; and the third section outlining briefly the relations between the elementary nervous system and the central nervous system of the more complex animals. The subject has been approached generally from the anatomical and histological standpoints; in this volume, the chief emphasis is on the functional, rather than the structural aspects, and should further the development of experimental biology.

Mechanisms of Character Formation. By WILLIAM A. WHITE, M.D. 12 mo. pp. 342. The Macmillan Co., New York, 1916. Price, $1.75.

The sub-title of this book, "An Introduction to Psycho-analysis," indicates sufficiently that this is one of the books devoted to some of the wider aspects of the theories which are commonly called Freudian. Dr. White's writings are always interesting, and clearly written, and in this book he has drawn upon a large amount of material from myths, folk-lore, and beliefs of primitive peoples to support the theories which he propounds. He sets forth in a way that is very convincing the conflicts of emotions and desires and the effects of the limiting influences of social environment, education and other things upon the psyche or character.

The handling of the Freudian incest impulse in the chapter on the "Family Romance" in its broader aspects as the attraction to the home that keeps one infantile is illustrated with a wealth of examples from many sources, including various forms of mental disease, so that new points of view are shown the reader, though the reviewer cannot follow the author in accepting this as always an incest impulse, or even sexual. Neither does Dr. White bring any convincing arguments for the acceptance of Freud's fantastic censor of thought, nor for the arguments that the conflicts between the pleasure-pain and reality motives date back to the placid intrauterine existence of the individual, both of which doctrines seem so vital for the acceptance of the Freudian psychology. Nor are the portions of the book upon symbolism, transference, transposition upward or other peculiar theories at all convincing.

Surgical Treatment. A Practical Treatise on the Therapy of Surgical Diseases for the Use of Practitioners and Students of Surgery. By JAMES PETER WARBASSE, M. D., Fellow of the American College of Surgeons, American Medical Association, American Academy of Medicine, New York Academy of Medicine, Surgeon to the Wyckoff Heights Hospital, Brooklyn, N. Y.; formerly Attending Surgeon to the Methodist Episcopal Hospital, Brooklyn, N. Y., in three volumes, with 2400 illustrations. Volume II. Philadelphia and London: W. B. Saunders Company. 1918.

The second of the three volumes of "Surgical Treatment" (Warbasse) is somewhat smaller than the first: it contains about 800 pages of text, and 750 illustrations: it covers injuries and diseases of the head, neck, chest, and abdomen, including the special subject of eye, ear, and nose.

The good impression made by the first volume is continued by the second.

The eye, ear, and nose, usually omitted from general surgical text books, are treated in detail and at great length; the procedures both of general and special surgery are briefly described, all unnecessary details being omitted. Illustrations supplement the text in exceptionally good fashion, the pictures of operations on the intestines being unusually good, and very numerous; we regret not to find among them Monks' excellent cuts on intestinal localization.

The section of the spleen seems proportionately too short, only four pages out of 290 devoted to the abdomen.

Taken as a whole, this second volume is admirable; it is recommended cordially to the profession.

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RED CROSS LEAGUE SOCIETIES.

IT has been announced by the National Red Cross Headquarters that there has been formed in Paris a League of Red Cross Societies for the purpose of unifying the Red Cross organizations of the world in a systematic effort to anticipate, diminish, and relieve misery produced by disease and disaster. The American Red Cross has stated that the objects of the League are:

1. To encourage and promote in every country a duly authorized voluntary National Red Cross organization, having as purposes the improvement of health, prevention of disease, and mitigation of suffering throughout the world, and to secure the coöperation of such organizations for these purposes.

2. To promote the welfare of mankind by furnishing a medium for bringing within reach of all peoples the benefits to be derived from present known facts, and new contributions to science, and medical knowledge and their application.

3. To furnish a medium for coördinating relief work in case of great national or international disasters.

The control of the League will be by general council, composed of representatives of all members of Red Cross societies meeting at designated periods. A governing board of fifteen members will be chosen by the general council to direct the affairs of the League in the intervals between such meetings. Henry P. Davison of New York, formerly chairman of the War Council of the American Red Cross, is chairman of the League's first Board of Governors. Other members of the board chosen thus far are: Sir Arthur Stanley of the British Red Cross, Comte Kergorlay of the French Red Cross, Count Frascara of the Italian Red Cross, and Professor Ninagawa of the Japanese Red Cross. Geneva will be the headquarters of the League, and the world health program shaped at Cannes will be further prepared.

While it is expected that the League of the Red Cross will establish intimate relations with the League of Nations, it should be understood that the Red Cross League, being a purely voluntary, non-political, non-sectarian, non-governmental organization, has no statutory connection with the League of Nations or with any government.

Mr. Davis, commenting on the Red Cross League, said: "The Red Cross Societies of the United States, Great Britain, France, Italy, and Japan have, for several months, worked incessantly through their representatives, to devise an agency which would adequately cope with the world problems of disease and disaster. We hope it will be universal in membership. From the outset it was clear to us all that there was no institution in the world so well adapted to this task as the Red Cross, because of the peculiar hold which it has upon the hearts of all peoples, irrespective of difference of race and religion; because of the amazing development of its powers in the recent war, because of the anxiety of its membership not to lose the opportunity for service when war service was no longer needed. It is generally believed that the health problems of the world can never be solved by doctors alone, but must enlist hearty volunteer coöperation of the peo-

ples themselves; and no organization can mobilize the peoples of divergent views as can the Red Cross. For this reason the five largest Red Cross societies have united to bring about universal Red Cross coöperation.

TYPES OF NEUROLOGICAL CASES.

We have received recently three articles by Dr. John Jenks Thomas, one of which, "Neurological Indications for and against Operation in Traumatic Injuries Affecting the Central Nervous System," was published in our issue of the Journal for October 11, 1917. In this article, Dr. Thomas presents the subject of surgical treatment of injuries of the brain and spinal cord, considering first, the cases of injury of the spinal column. The spinal cord, and in addition, the cauda or nerve roots, may be injured in various ways where there is trauma applied to the spinal column. In some cases, there results a compression fracture of the body of one or more vertebrae. There are frequently instances in which the area of destruction in the cord is found to be unilateral, and there is present the Brown-Séquard syndrome of loss of superficial sensation in the opposite side of the body from the lesion, with loss of motion and deep sensation on the same side. The author cites histories of these cases, and considers the value of surgical operation in cases of dislocation of the spine, total crush of the spinal cord, and fractures of the skull.

In a second article, Dr. Thomas considers three cases of chronic progressive lenticular degeneration with mental deterioration. He quotes from Wilson the clinical features of this condition, and enumerates as symptoms involuntary movements, which he describes as a tremor nearly always bilateral, and affecting both upper and lower extremities, usually rhythmical, occasionally irregular, increasing with volitional movements of the limbs. There is pronounced spasticity of the limbs and face, and in the later stages, contractions develop and there is dysphagia, dysarthria, and eventually anarthria. Pathologically, there is found a bilateral, symmetrical softening of the lenticular nucleus. Dr. Thomas cites the cases of three children in one family, similarly affected, with no discoverable heredity. The author reports that these cases differ in several essential points from those observed by Wilson, first in the character of the tremor, the absence of fixed spastic smile, the dysphagia, and especially in the evidence of the affection of the pyramidal tracts. There was no evidence of any affection of the liver. These cases show a close resemblance to those described under the title of pseudo-sclerosis. Dr. Thomas believes that the difference between these three cases and those described by Wilson justify him in considering them due to a process more degenerative in character than destructive, and probably not as sharply limited to the lenticular nucleus as the changes found in Wilson's disease.

Dr. Thomas' third article is, perhaps, the most interesting, because it is a product of the war and describes types of neurological cases seen at a Base Hospital. Dr. Thomas was in charge of the medical division of the English Base Hospital in France, which was given over to the care of the first unit sent by Harvard University. He also had opportunities of hearing of work in other hospitals. In the cases which came under his observation, gunshot wounds of the head, back, and arms were quite frequent. In regard to injuries of the large nerve trunks in the extremities, in a large number of instances the nerve was found not to have been divided, but merely contused by the missile, or rarely compressed by hemorrhage within or about the nerve trunk, or by edema of the surrounding soft parts. The author learned that at English hospitals a method had been found for testing the nerve function by means of electrical currents passing through condensors, thus making it possible to determine accurately, after a period of about three weeks from the date of the injury, the extent of damage to the nerve and whether or not it had been divided. Dr. Thomas has expressed his belief that operations on nerve trunks are better postponed until the wound has healed, and mentions various measures, both operative and non-operative, to be considered after the completion of healing.

Dr. Thomas divides injuries of the spinal cord into two general classes: first, those in which a cord has been injured directly by the missile or by fragments of the spine driven into it which lacerate it or compress it; and

second, cases in which there is a softening of the cord or hemorrhages into its substance, produced indirectly by the concussive effects of the projectile. The author cites instances of cases to illustrate injuries to the spine and wounds of the brain, and explains methods of treatment. In the latter cases, he believes that early operation offers no advantages to compensate for the disadvantages of limited appliances at the hospitals near the firing line.

These articles by Dr. Thomas are valuable contributions to medical literature.

"PTOMAIN POISONING."

IT is a regrettable fact, yet none the less true, that in most cases when we are uncertain concerning a diagnosis we fall back on "blanket" terms such as "autointoxication," "sciatica," "disturbances of the automatic nervous system." and "ptomain poisoning." Alvarez[1] aptly points out that "fashions in this 'cloak of ignorance' change just as they do in wearing apparel." Further study of such diagnoses usually shows that many specific etiologic factors have been wrongly incorporated under one term. Particularly does this seem to be true in the case of "ptomain poisoning," as pointed out in a recent article by Dr. M. J. Rosenau.[2]

This author is firmly convinced that the diagnosis "ptomain poisoning" is never justified, that it lacks precision, and that it is synonymous with uncertainty. It is pointed out that the word "ptomain" was first used in 1873 by Selmi to designate certain products of putrefaction which, at that time, were included among the animal alkaloids; that since 1873 many attempts have been made to identify "ptomains," the most recent definition being suggested by Vaughan, who described them as intermediate cleavage products of protein decomposition.

Split products of protein putrefaction are comparatively easy to isolate, and some of them, when injected parenterally, have been shown to be poisonous, but, so far, none of them have been demonstrated to be harmful when taken by the mouth. These products are usually isolated from food which is in a state of putrefaction far past the edible stage, and in addition, it should also be noted that chemists are rarely sure of their purity even when obtained in the crystalline form. Most of them are amins and are not poisonous at all, or at least no more so than their corresponding ammonio salts. For these reasons the chemical search for protein fractions as the cause of food poisoning has been almost abandoned.

Many outbreaks reported as "ptomain poisoning" have been investigated in the Department of Preventive Medicine and Hygiene of the Harvard Medical School. In only a small residue of their cases have they found it impossible to demonstrate a definite etiologic factor, and in these cases the symptoms were very mild and transient. Among the ailments which were diagnosed "ptomain poisoning" may be mentioned bacillary dysentery, oxalic acid poisoning, over dosage of potassium nitrate, food idiosynerasies or anaphylactic reactions, heat exhaustion, food indiscretions, tartar emetic poisoning, uremia apparently due to neoplasm, nervous diarrhea, botulism, and various bacterial infections.

From these observations it must be perfectly clear that not only is the term "ptomain poisoning" vague and indefinite, but, in addition, an actual misnomer. As suggested in the article quoted above,[2] it would seem to be a great step forward if the profession would discontinue the use of the term and let the diagnosis stand as "gastro-enteritis of unknown origin," much as the British use the term "Pyrexia of Unknown Origin" (P. U. O) for fevers, the cause of which is undetermined.

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TYPHUS IN CENTRAL EUROPE.

AN appeal addressed to the international committee of the Red Cross by the president of the Austrian Red Cross, published in a recent Public Health Report, discloses the seriousness of the typhus situation in central Europe. The disease has spread through all the districts of Poland, in the country of the Jugo-Slavs, especially in Old Serbia, and is spreading rapidly toward the west. Contamination is spread by the repatriated soldiers who, without food,

clothes, and sanitary conditions generally, are easy subjects for infection. In response to the call for assistance from all sides, especially Poland and Ukraine, the Austrian Red Cross assembled the sanitary delegates of Poland, the Ukraine, of Jugo-Slavia, and of German Austria for a conference which took place on February 28. It was voted to appeal through the Austrian Red Cross to the International Committee of the Red Cross in Geneva, and ask that an international commission be appointed by the allied states to contend with the typhus situation.

The appeal points out that in order to check the plague, sanitary help should be given to the suffering countries at once. Modern hospitals and disinfection stations should be erected, and mobile sanitary formations, disinfection units, and field laboratories equipped. Prophylactic measures should be taken at all points of entrance on the western border, and repatriated soldiers should be provided with linen, clothes, food, medicines, and disinfectants. The disease is extremely infectious, and is transmitted by the clothes louse; centers of infection are easily formed in distant localities, thus exposing many to contagion. This report of conditions in central Europe shows that the danger from typhus threatens the whole of Europe, and should receive special attention.

In recognition of this situation, it has been announced in a recent issue of *The Red Cross Bulletin*, that the League of Red Cross Societies has recently addressed an appeal to the Red Cross Societies of Great Britain, France, Italy, Japan, and the United States, and to the twenty-four national societies which have been invited to join the League, asking them to prepare to participate in a campaign against the spread of typhus. The Supreme Economic Council, representing the allied governments, will place at the disposal of the League surplus medical and hospital supplies belonging to the British and American armies and will insure transportation. The League will supply and maintain personnel for the administration of this work. A definite plan will be prepared by a committee for submission to the various governments. This united effort to check the typhus epidemic is an indication of the future usefulness of the League of Red Cross Societies.

MEDICAL NOTES.

BOSTON AND MASSACHUSETTS.

WEEK'S DEATH RATE IN BOSTON.—During the week ending June 28, the number of deaths reported was 181 against 207 last year, with a rate of 11.85 against 13.77 last year. There were 32 deaths under one year of age against 27 last year.

The number of cases of principal reportable diseases were: Diphtheria, 51; scarlet fever, 35; measles, 28; whooping cough, 34; typhoid fever, 1; tuberculosis, 52.

Included in the above were the following cases of non-residents: Diphtheria, 7; scarlet fever, 1; tuberculosis, 3.

Total deaths from these diseases were: Diphtheria, 2; measles, 2; tuberculosis, 20.

Included in the above were the following non-residents: Diphtheria, 1; tuberculosis, 2.

Influenza cases, 1; influenza deaths, 0.

ITALIAN MEDICAL SOCIETY OF BOSTON.—The Italian Medical Society of Boston held a banquet at the Hotel Napoli in Boston on June 23, 1919, in honor of the president, Dr. Rocco Brindisi, who will sail for Italy within a short time. Dr. Edward O. Otis and Dr. Lincoln Davis described their experiences in Italy. The following officers were elected for the ensuing year: President, Dr. Antonio De Robertis; vice-president, Dr. Gerardo M. Balboni; secretary, Dr. Gaetano Praino; treasurer, Dr. L. Ciani. Dr. Rocco Brindisi was elected honorary president.

Obituaries.

FREDERICK WALLACE ABBOTT, M.D.

DR. FREDERICK WALLACE ABBOTT died at his home in Taunton on June 19, in his fifty-ninth year. Dr. Abbott was born at Dover, New Hampshire; he was educated in the public schools of Dover, Berwick, and South Berwick, Maine, and after teaching for four years, entered Dartmouth College. He received the degree of A.B. from the University of America in 1883, attended the medical department of Bowdoin College for two years, and was graduated from the Eclectic Medical College of Maine in 1886. In the same year Dr. Abbott married Sylvina Apphia Emery, of Kennebunk.

Dr. Abbott practised in Taunton until the latter part of his life, when he devoted considerable time to consulting and medico-legal work and diseases of the nervous system. He was honored by two professorships: the Professorship of Eugenics at the Eclectic Medical University of Kansas City, Missouri, and a Professorship in Middlesex College. Dr. Abbott had been elected head of the Eclectic Association, and had received among many honorary degrees, an A.M. from Taylor University; a Ph.D. degree from the National Normal University (Lebanon University since 1908); he was an LL.D. of Potomac University in 1905, of which institution he was also one of the guiding officers; he was F.S.Sc. (1901) of London in 1908. Dr. Abbott was licensed to practise in Michigan in 1890, and in Vermont in 1897, and was also lecturer on physiology and hygiene at Merrimac County Academy, Concord, N. H. He also was an honorary life member of the Société Internationale de Philologie, Sciences et Beaux Arts, England, with the title of F.S.P., and an active member of the American Association of Orificial Surgeons.

Dr. Abbott contributed many articles on medical and surgical subjects.

SARAH ADAMS BOND FRASIER, M.D.

DR. SARAH ADAMS BOND FRASIER died at her home in Jamaica Plain, June 28, 1919, after a long illness following pneumonia, which she contracted while working for the War Department in Virginia. She was born in Boston August 13, 1858, the daughter of the late Thomas and Mary Bond. She attended the preparatory school of the Massachusetts Institute of Technology and then went on to the Woman's Medical College of Pennsylvania at Philadelphia, where she took an M.D. in 1891. Returning to her native city, she settled in practice, became a physician to the New England Hospital for Women and Children, and joined the Massachusetts Medical Society. She was president of the New England Women's Medical Society. At the time of her death she was medical examiner to Radcliffe College and consulting physician to the New England Hospital for Women and Children.

A week before her death Dr. Bond married Frederick W. Frasier, a retired business man.

Miscellany.

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Correspondence.

THE CHEMISTRY OF NUTRITION.

New Haven, Conn., May 24, 1919.

Mr. Editor:—

My attention has recently been called to comments (in this JOURNAL, Vol. clxxix, No. 25) by Dr. Hugh Payne Greeley on my paper published in the *Atlantic Monthly* for last September.

Among our practising physicians, teachers, and dietitians there are many who, like Dr. Greeley, appear to have not yet become familiar with the newer work in the chemistry of nutrition and the changed viewpoint entailed by it, and so have failed to appreciate its practical application. It seems to me to be of some importance to reply to Dr. Greeley's comments—not merely because he attributes to me certain opinions which are exactly contrary to those I really held, but more especially for the reason that the article to which he takes exception was written for the express purpose of calling these new and interesting aspects of the science of nutrition to the attention of those who might otherwise fail to appreciate their significance, and to stimulate discussion of the subject as well.

Some of those who are now teaching do not realize that the science of nutrition, which they are attempting to apply in daily life, has heretofore been founded almost entirely on studies of the energy aspects of the problem with very little consideration of the chemical side of the question, which is only just beginning to assume its due importance. Only a moment's thought shows that nutrition is a chemical process and that the energy relations of this are only incidental to the chemical. The energy features of nutrition have been studied with great care and measured with great accuracy and, so far as these investigations have gone, must be accepted as established on an absolutely firm foundation; but those who have devoted their lives to such investigations have unanimously admitted to me that much remains to be learned before we can tell a man "how much to eat." I agree that we can tell an individual *some* of "his dietary needs" and protect him from *some* of the dangers he may fall into in consequence of living under artificial conditions. This is possible with our present knowledge, but I maintain that it must be done with the exercise of common sense and with a full realization of the limitations of our present learning, if we are not to risk great dangers.

There is no question but that good and much needed advice can be given to people living under restricted conditions, especially when these are imposed by poverty. I am the last one in the world to wish to discourage aiding such unfortunates, but I do feel that common sense should guide our efforts. So many of those engaged in such work appear to assume that science has solved *all* the problems of nutrition that it seems to me time to call attention to the fact that much of the advice they give is hardly justified by our present state of knowledge.

Whether one is eating too much or too little is practically impossible to determine positively unless, as I pointed out, the scales demonstrate a steady gain or loss of weight. Even in such cases, obscure pathological conditions may determine the food intake so that less or more food than the appetite demands may lead to a condition worse than that earlier prevailing. I fully agree with Dr. Greeley when he says that the fat man seldom, if ever, establishes a normal condition from a reconstruction of diet alone. Many such men, I believe, will ultimately be recognized as suffering from perverted metabolism in which the food is stored as fat with abnormal ease while factors essential for normal metabolism are not produced. One such case, under my daily observation for many years, when his apparently excessive food supply is reduced, manifestly suffers as much as would a normal individual placed on a calorifically inadequate diet. We all recognize in diabetes a perversion of metabolism whereby carbohydrates escape utilization. It is not unreasonable to suppose that obesity may represent another form of perverted metabolism. Until more is known than the very little that has yet been learned about intermediary metabolism, we will not be in a position to dogmatically assert that one individual overeats or that another undereats.

How many and how complex are the conditions which determine how much one shall eat? It becomes practically impossible to determine for any individual what his food intake should be from day to day. If Dr. Greeley can furnish any better guide than the instinct of the average normal man under conditions permitting a free choice of diet, he ought to make it known to all the world. It is easy enough to establish statistically what is the average calory intake of large numbers of individuals living under similar conditions of activity and diet. As I pointed out in my article, this has already been done and has been made the foundation of the prevailing judgment respecting the food requirement of the average man. This, however, recognizes that the average man under normal conditions instinctively eats about as much as he needs, which was the main point of my contention. When the needs of single individuals are to be prescribed for, I can see no reason for discardidng instinct as a guide, for if it is admitted to be trustworthy in fur-

nishing the statistics on which modern dietetics has been founded, it certainly ought to be helpful in guiding the majority of single individuals in satisfying their own requirements.

I am perfectly ready to admit that there are cases where instinct fails. Perverted instincts have long been recognized, but for the great majority I am convinced that food intake can be controlled by instinct far more accurately than it can ever be controlled by intellect. Too many factors, difficult to determine or to measure, are involved to make control by reason a workable proposition.

Dr. Greeley opens his review of my paper by quoting statements in regard to views generally held concerning overeating. These quotations would lead the reader of his article to believe that these were views which I endorsed, whereas the purpose of my paper in the *Atlantic Monthly* was to call these very views into question. Further, he quotes: "Waste of food from overeating is doubtless small and quite likely compensated for because a large proportion of the 'good feeders' are among the most efficient in every community." This he disposes of by the dogmatic statement that "The efficiency of these individuals shortens their lives in direct ratio to the number of pounds overweight they are." Quite likely this is in general true, but he missed the whole point of this part of my paper when he assumed that those whom I designated as "good feeders" were overweight. Something cannot be made out of nothing and little in the way of efficiency can be expected of an individual who does not metabolize efficiently.

Dr. Greeley next refers to my remarks on the capacity of millionaires to metabolize, in such a way as to lead me to suspect that he believes that the possession of wealth has an abnormal influence on the physiology of men. It doubtless does wreck the constitutions of some, but I believe that quite as many have been ruined by a fear of the disasters which might result from their unrestrained appetites. I have myself seen cases of millionaires who have been so frightened by the advice of their physicians and so enfeebled by the diets prescribed that the last days of their short lives have been spent in misery.

Dr. Greeley says that "when Professor Osborne says that dietary habits which satisfy the promptings of instinct are among the most difficult to change, whereas those that do not satisfy instinct are easily changed, he shows a better acquaintance with the dietary habits of the albino rat than with those of his fellow men;" and again, "Dietary habits are habits, and I have yet to see any dietary habits easy to break." From this I conclude that it has been Dr. Greeley's practice to attempt to make his patients change already adequate diets. Did he or anyone else ever hear of a man born in poverty and reared on a diet restricted by poverty, who, when he acquired wealth, found it difficult to change his dietary habits?

Dr. Greeley quotes me as saying that "it is not at all improbable that many delicate people of sedentary habits, who eat but little, suffer chiefly from a deficient supply of vitamines." This he says is a statement "which the practical clinician would feel inclined to dispute." Dr. Greeley's conclusion is undoubtedly correct, for very few clinicians have as yet had an opportunity to observe the almost miraculous effect of vitamines on animals that have been previously fed on foods deficient in this factor. I am convinced that this is a subject of very great practical importance, well worth the attention of clinicians.

Since it has been demonstrated beyond all question that death soon ensues when a vitamine-free diet is fed and that the need of vitamines is quantitative, there is every reason to believe that many persons who are run down and miserable, with poor appetites, and perhaps living on one-sided diets, are really chiefly suffering because their food intakes are so small that they fail to supply the requisite quantity of vitamine. Physicians frequently prescribe travel, diverting company, tonics, or other changes to improve the condition of such persons. Better appetites are invariable concomitants of the improved physical condition which may follow such treatment, and with increased food intake an increased vitamine intake is inevitable. On this assumption, I have suggested to two or three people who were disinclined to eat a normal quantity of food that they should try increasing their vitamine intake by eating a few grams of dried yeast each day. In all these cases appetite was promptly increased with a marked improvement in well-being. Whether this was the result of the larger vitamine supply or a mere coincidence I do not know, but, at any rate, the experiment seems well worth trying on a larger scale by clinicians, especially as no ill effects can be expected except in cases where purines should be excluded from the diet.

The influence of vitamine on appetite is astonishing, the food intake after adding a little vitamine to a diet low in this factor often being increased from 100% to 200%. An animal which has declined on such a diet and is consuming too little food to maintain its body weight may usually be stimulated by a little yeast, fed separately and apart from its food, to eat enough of the diet on which it was previously declining to quickly regain its lost weight. When food intake, and consequently the vitamine intake, is thus established on a higher plane, the vitamine intake may then be sufficient to enable the animal to continue to gain weight on the same food after the supply of yeast is suspended.

Dr. Greeley concludes his criticism as follows: "Must we not teach the new American his particular dietary needs, both as to what and how much to eat?" To this I answer most emphatically, yes, but in return I ask how can we do so? If we attempt to tell the man who knows nothing of the principles of nutrition how he should regulate his food intake, it is absolutely necessary that those who teach should know what "the particular dietary needs actually are," and that is just what we do not as yet fully know.

Dr. Greeley apparently assumes that I object to the use of experience and science in feeding men or animals under restricted conditions; under conditions of free choice he agrees with me that men as well as animals living in a state of nature are guided successfully by instinct. It requires but a moment's thought to realize that this is also true in the civilized state under like conditions of free choice. If it were not so, mankind would have perished long ago, for only recently have they been guided in any other way.

Domestic animals and men in institutions must either eat the rations furnished or starve. Under such circumstances instinct has no chance to exercise choice and, of course, cannot be expected to be helpful. My observations lead me to think that many individuals who need no help to save themselves from the consequences of a diet imposed by the limitations of either their circumstances or their intellects, have often suffered more through following the advice they have received than from the unfortunate condition which their advisers were trying to relieve.

In my *Atlantic Monthly* article I endeavored to point out typical instances of the wise guidance of instinct, to the end that these might receive more attention than has recently been given them, and also to point out that there are still many problems which science must solve before we can really know as much about nutrition as some practitioners of medicine and many unreflecting or ill-informed teachers of so-called "domestic science" now assume to be fully proved. In other words, my article was in one way a plea for the exercise of a little common sense in attempting to apply in practice ideas and beliefs which are not proven and may or may not be true. Dr. Greeley and I are by no means as far apart as he seems to think, in our opinions as to what and how much we should eat.

THOMAS B. OSBORNE.